In the Claims

1. (currently amended) A method for dynamically allocating bandwidth to traffic having a variable data rate in a network, comprising:

measuring a data rate of the traffic received from the network during fixed length time intervals;

grouping a ~~predetermine~~ predetermined number of consecutive data rates into overlapping vectors;

applying a discrete wavelet transform to each overlapping vector to determine frequency bands for each vector;

analyzing the frequency bands of each vector to determine an associated energy of the data rate; and

allocating the bandwidth to the traffic according to the associated energy when the traffic is transmitted.

2. (original) The method of claim 1 wherein the bandwidth is allocated in a weighted fair queuing process.

3. (original) The method of claim 1 wherein the bandwidth is allocated in a quality-of-service management block of the network.

4. (original) The method of claim 1 wherein a clock sets time intervals $\sum_n \delta(t - nT)$ at a clock rate of $\frac{1}{T}$ for a data counter.

5. (currently amended) The method of claim 1 wherein the ~~predetermine~~ predetermined number of consecutive data rates are grouped into the overlapping vectors in a shift register of length eight.

6. (original) The method of claim 1 wherein the discrete wavelet transform is performed by a Haar wavelet filter bank.

7. (original) The method of claim 1 further comprising:

receiving buffer statistics and a minimum non-zero data rate as feedback while allocating the bandwidth.

8. (original) The method of claim 1 wherein each overlapping vector is in terms of

$\underline{\mathbf{X}}_{\mathbf{k}} = [X(n-M+1)\ X(n-M+2)\ \ldots.X(n)]$, where M is eight, and n is an instance in time.

9. (original) The method of claim 1 wherein an average data rate for M consecutive time intervals is

$$\underline{\mathbf{X}}_{\mathbf{k}+1} = 1/2.[X(n\text{-}M+1)+X(n\text{-}M+2)\ \ X(n\text{-}M+3)+X(n\text{-}M+4)\ \ldots.\ X(n\text{-}1)\ +X(n)]$$

at a time scale of $k+1$, and a difference of data rates between two consecutive time intervals is

$$\underline{\mathbf{Y}}_{\mathbf{k}+1} = 1/2.[X(n\text{-}M+1)-X(n\text{-}M+2)\ \ X(n\text{-}M+3)-X(n\text{-}M+4)\ \ldots.\ X(n\text{-}1)\ -X(n)]$$

where n is a time instance, k is a time scale, and M is an integer.

10. (original) The method of claim 1 wherein the associated energy is expressed as

$\underline{E_n}[E_{1,n},[E_{2,n},\ldots,[E_{k,n}]$.

11. (original) The method of claim 1 wherein a sum of the energies in each frequency band is bounded by a total energy of the traffic.

12. (cancelled)